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27th ANNUAL McGRAW-HILL FALL SURVEY OF
PRELIMINARY PLANS FOR NEW PLANTS AND EQUIPMENT, 1980-82

Looking back at a troubled economy in 1980 and peering anxiously into an immediate future that promises little real growth, American business next year plans to keep a tight rein on capital spending.

On the face of it, capital spending plans for 1981 look fairly robust, with expenditures slated to rise by 11.9% over 1980 (see Table I at the end of this report). During the same period, however, business expects prices of new plant and equipment to jump by 10.1% (Table II), so that once inflation is removed, "real" capital spending next year is projected to inch ahead by just 1.8%. If business' plans are realized, the value of U.S. plant and equipment purchases will reach $218.49 billion in 1981.

These results are based on a survey conducted by McGraw-Hill in September and October to which more than 460 companies accounting for 45% of U.S. plant and equipment spending responded (Table VII). The results refer to total business investment in the U.S., not just to spending by companies responding to the survey.

The survey also found that business expects expenditures on plant and equipment to rise by about 10% in 1980 to $195.27 billion. With capital goods prices this year running about 9% ahead of last year, the survey suggests that inflation-adjusted plant and equipment expenditures in 1980 will top the 1979 figure by a little more than 1%. By contrast, spending in 1979 jumped 5.6% over 1978, in real terms.

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The McGraw-Hill fall survey of firms' plans to buy new plant and equipment has, of course, been off the mark at times in its 27-year history. When the survey was taken last fall, however, respondents projected a 9.5% capital spending increase in 1980; and after taking out inflation, spending was expected to stay flat in real terms. A year later, it appears that those results were close to the bull's eye.

One reason for the accuracy of last year's survey may have been that most survey respondents foresaw recession or slow growth in 1980 and thus planned accordingly by limiting capital budgets. While less pessimistic now than it was a year ago, business is still gloomy over the prospects for economic growth: More than two-thirds of survey respondents foresee a recession or slow growth in 1981 (Table V). Factoring in the more optimistic views of other companies, business as a whole expects the economy to grow by only about 2% in real terms next year. The implication is that, like last year, American companies in 1981 will be keeping close watch over their capital budgets, and thus a projection of less than 2% real growth in capital spending is realistic.

More Evidence of Sluggish Spending

The survey aside, are there other reasons to think that inflation-adjusted capital spending will be weak next year?

First of all, history supports the survey finding. For evidence, consider Chart I below, which shows changes in capital spending and gross national product (GNP) for years following recessions. (Since recessions end in different months, the "year" following a recession may be nearer or farther from the recession, depending on when the recession

ended. The chart, therefore, is only suggestive of capital spending patterns in post-recession years.)

Chart I. Post-Recession Growth & Investment

	-------Real % Change---------	
	GNP	Plant & Equipment Spending
1950	+8.7%	+3.6%
1955	+6.7	+6.5
1959	+6.0	+3.1
1961	+2.5	-1.8
1971	+3.0	-3.6
1976	+5.9	+2.0
1981	+2.0 ?	+1.8 ?

Note that in each post-World War II recovery year, capital spending lagged behind growth in the economy as a whole. If companies responding to the survey are right in their view that GNP will grow by only some 2% in 1981, then their projection that capital spending will grow by less than 2% is in accord with history--spending, that is, would grow more slowly than the rest of the economy next year.

But if anything, the projection of 1.8% capital spending growth is bullish, given the GNP expectations. For in the two post-World War II years showing only modest recovery--1961 and 1971--plant and

equipment expenditures actually fell in real terms. Thus, if GNP in 1981 grows by only 2%, real capital spending could decline a bit.

The reason nonresidential construction and capital equipment sales fare relatively poorly in recovery is straightforward: During recession, operating rates fall, leaving firms with lots of spare capacity. Therefore, when demand starts to pick up in the early stages of recovery, business can easily meet that demand with existing plant and equipment. Moreover, since the beginnings of recovery may be "iffy"--Is the recovery here to stay?--businesses may not want to dive into any expansion plans until economic expansion seems a sure bet. The result: A delay between recovery and increases in capital spending.

Low operating rates and fears about recovery aside, companies that nevertheless want to expand early in recovery may not be in a financial position to do so. During recession, that is, cash flow gets squeezed as profits tumble. For example, in the second quarter of 1980 (when real GNP plummeted at a 9.6% annual rate), cash flow adjusted for inflation dropped like a rock--down nearly 50% at an annual rate. With corporate balance sheets under such pressure, it is not likely that boards of directors will soon be flashing green lights to all kinds of capital projects--projects that by their nature do not pay off in the short run.

In sum, as the economy climbs out of recession, business typically has little need to invest in plant and equipment since plenty of capacity already exists to meet current demand; in addition, business has little wherewithal to invest because balance sheets have been crunched by the downturn in profits. And this time around is no different--cash flow has plummeted and the industrial operating rate in

September was at a dismal 73.6%, down more than 10 percentage points from a year earlier. Thus, for the usual business cycle reasons alone, the outlook for capital spending in 1981 is not good.

But besides these predictable roadblocks that now stand in the way of 1981 capital expenditure gains, another obstacle has been thrown up--high and rising interest rates. Interest rates typically rise during initial stages of recessions, in part because companies don't try to cut borrowing until they perceive that recession is real and in part because as inventories mount to excessive levels companies must borrow to finance them. Once companies clearly perceive the recession, they run down inventories and try to reduce borrowing in general. Hence, by the end of recession interest rates are declining, and in some cases continue to decline during the early stages of recovery. What's more, rates may take from a year up to several years to climb back to peak levels.

Chart II. 1980 Interest Rates

	Corporate Bond Rate (%)	Prime Rate (%)
January	11.65%	15.25%
February	13.23	15.63
March	14.08	18.31
April	13.36	19.77
May	11.61	16.57
June	11.12	12.63
July	11.48	11.48
August	12.31	11.12
September	12.58	12.07

Assuming the business cycle hit a peak last January and then bottomed, at least temporarily, in the summer, the pattern of 1980 interest rates shown in Chart II is not encouraging when compared to the typical pattern. As is usually the case, interest rates rose and then fell during the 1980 recession. However, note that corporate bond rates came bouncing back in July, and rose steadily in August and September, heading toward the recession peak rate of 14.08%. The average prime rate in September was well below the recession peak, but it too was rising. The upshot is that besides being checked by plentiful capacity and scarce financial resources, companies might further limit capital spending next year because of high interest rates.

Even after adjusting interest rates for inflation, the resulting "real" corporate bond rate in 1980's third quarter was still fairly high, as illustrated by Chart III. While interest rates do not play the

Chart III. "Real" Interest Rates

	Corporate Bond Rate (%)	Inflation Rate (%)	"Real" Corporate Bond Rate (%)
1950	2.6%	2.0%	0.6%
1955	3.2	2.2	1.0
1959	4.9	2.2	2.7
1961	4.6	0.9	3.7
1971	7.9	5.1	2.8
1976	8.6	5.2	3.4
1980 IIIQ	12.1	9.1	3.0

NOTE: The "real" bond rate is derived by subtracting inflation from the bond rate in the first column. Inflation is measured by the GNP implicit price deflator.

biggest role in determining plant and equipment spending, their role is important enough, as suggested by a comparison of Charts I and III. Chart I shows that real capital spending made greater gains in 1950, 1955, and 1959 than in 1961, 1971, and 1976. Chart III shows that real interest rates were higher in the latter three years, compared to the former three years. The implication is that higher real interest rates help damp capital spending. This comparison suggests further that with the real corporate bond rate already at 3% in 1980's third quarter, additional increases in rates could do serious damage to capital spending in 1981.

On the basis of these observations, then, the survey's projection of 1.8% real spending growth is likely to be on the high side.

Stepping back from 1981 as a whole and looking at indicators of near-term business investment, the conclusion again is that spending will be weak at least in early 1981. On the equipment side of capital spending, new orders for nondefense capital goods fell in both the second and third quarters of 1980. As for the construction side, the F.W. Dodge value of commercial and industrial construction contracts in the third quarter was far below the value of the first quarter. The message is that neither sector of capital spending will be showing any near-term strength, and that investment will likely be declining--at least in real terms--as the new year begins.

On the other hand, expenditures in 1981 will likely get a boost for a reason--namely energy--that didn't hold in recoveries prior to 1976. True, the bulk of capital spending next year, as always, will be made in response to capacity requirements, replacement needs, and financial conditions; but a certain amount will be keyed to saving energy. And while this is only the second year that McGraw-Hill has

asked firms to report on energy conservation capital spending, the results (Table VI) suggest that such expenditure is growing. In 1981, the target is $8.5 billion, or nearly 4% of total plant and equipment spending. The upshot here is that due to business' continuing efforts to conserve energy there is a source of strength in 1981 capital spending that didn't exist in earlier post-recession years. (For a further discussion of the energy conservation results, see the last section of this report.)

Looking beyond next year, the survey projects that plant and equipment expenditures will rise by 8.8% in 1982. Survey results more than one year out are, naturally, less reliable than projections for the coming year. In particular, the survey usually projects too low a percent change in capital spending beyond one year in the future. The reason is that plans for two years ahead are not yet firm when the survey is taken, and thus represent only part of the spending that will actually occur. The 8.8% projection for 1982, therefore, should be viewed as a low-side estimate.

Industry and Sector Spending

By far, the most robust capital expenditures of any industry are planned by petroleum--up 42.8% in 1981 and another 25% in 1982. In fact, when petroleum spending is removed from the total of all business' spending, the remaining industries project a rise of just 8.3% next year--a decrease in real terms of nearly 2%.

With both business and consumers cutting back on energy use, petroleum companies would seem to have little incentive to invest. But, of course, the industry is bent on developing whatever domestic sources

of energy it can, and is also retooling refineries to handle a greater variety of crude oils. In addition, petroleum companies plan heavy capital expenditures on petrochemicals next year.

At the other end of the 1981 capital spending spectrum is the stone, clay, and glass industry. Hit hard in 1980 by slumps in two important end markets--construction and autos--the stone, clay, and glass operating rate in 1980 fell by a precipitous 17 percentage points from January to July, bottoming out at 67.6%. In view of this operating rate decline, and considering that new orders for industry products fell in real terms this year compared to last, it is not surprising that stone, clay, and glass firms intend to decrease capital spending in 1981 by 10.2%--which translates into a fall of 20.2% after eliminating inflation.

Also socked by the deterioration in construction and autos was the steel industry, where the operating rate plunged to the extraordinarily low level of 48.6% in July, 30 percentage points off the already depressed January level. Although steel production has perked up a bit recently, the industry is still operating at low levels, and plans accordingly to reduce capital expenditures by 5.7% next year. In real terms, the decline is 14.4%.

The aerospace industry, too, plans a sharp decline in capital spending in 1981--down 8.2%, which is minus 18% in real terms. These figures suggest that any increase in planned defense spending has not yet had an impact on the aerospace industry, and that purchases of capital equipment needed for production of new fuel-efficient commercial airplanes will subside.

Other industries expecting decreases in capital spending next year are "other" durables, rubber, "other" nondurables, and railroads.

Back on the plus side, nonferrous metals and electrical machinery are expected to lead the durable goods sector in capital spending gains next year, with increases of 17% and 15.9% respectively. The nonferrous metals industry has been enjoying increases in metals prices for the past couple of years, which is a spur to investment. And electrical machinery, which includes some high-technology groups, has fared somewhat better in 1980 than other industries; for example, industry new orders for the first two-thirds of 1980 were up more than 10% over the year-ago period.

Aside from petroleum, nondurable goods industries with the largest planned percent changes in spending are chemicals (16.2%) and textiles (12.9%). Among nonmanufacturers, spending leaders are expected to be gas utilities (up 17.3%), "other" transportation (16.1%), mining (12.9%), and commercial firms (11.8%).

In general, durable goods manufacturers usually suffer more during recession than do nondurables manufacturers or nonmanufacturers; thus their investment in plant and equipment typically takes a longer time to recover. And this pattern is evident in the capital spending plans in Table I. For even when petroleum is taken out of the nondurables category, that sector's planned percentage increase is still 9.7%, twice as great as the durables figure of 4.7% and about equal to nonmanufacturing's planned increase of 9.4%.

Sales and Price Expectations

Besides collecting data on firms' capital spending plans, the McGraw-Hill survey also gathers information on business' sales and price

expectations. As reported above, business expects prices of plant and equipment to be 10.1% higher in 1981 than in 1980.

As for product prices, business is looking for a 9.9% rise next year (Table II). Among industries expecting the largest product price increases is mining (15.8%), a projection which likely reflects decontrol of domestic oil prices. (The mining category includes non-integrated oil companies whose major business is crude petroleum production.) Not surprisingly, the petroleum industry also anticipates large price increases next year (15.7%) as decontrol proceeds and as OPEC presumably again hikes the cost of a barrel of oil.

Heavily energy-dependent gas and electric utilities also project large price jumps of 18.3% and 13.4%, respectively. Airlines, whose costs soar along with petroleum prices, expect to boost fares next year by 11.5%.

The key single (non-monetary) factor affecting prices next year, then, is energy. If the major energy-producing and energy-using industries (mining, petroleum, gas and electric utilities) are ignored, product prices next year would rise by just 8.5%--about 1.5 percentage points less than is projected by all survey respondents.

While sharp boosts in energy-related costs will be working to raise prices throughout the economy next year, the survey data suggest that high-technology industries will be helping to keep down average price increases. For example, though business as a whole expects product prices to rise by 9.9% next year, the instruments industry anticipates that its prices next year will be just 5.6% higher than in 1980. The communications industry expects its prices to be only 5% higher, and the electrical and nonelectrical machinery industries foresee price rises of 8% and 8.5%, respectively.

Almost all industries, no matter what price increases are foreseen, believe that sales gains will exceed price rises next year: Sales adjusted for inflation, that is, are expected to increase. Manufacturers as a whole project a sales jump of 14.6% in 1981 (Table III); if prices rise by 9.4% as projected, real sales would then advance by 5.2% (Table IV). (Interestingly, if all expectations are met, the real sales gain of 5.2% would far exceed the projected growth in real GNP of only about 2%, indicating that survey respondents are more optimistic about their own businesses than they are about the economy as a whole.)

Anticipating one of the biggest surges in 1981 real sales is autos, trucks, and parts, which of course suffered sharp sales declines in 1980. Expecting consumers and fleet purchasers in 1981 to get rid of old cars and seek new American ones, the auto industry looks for real sales to climb by 8.3% in 1981. Even an 8.3% real spurt, however, would leave the industry well below 1979 sales levels.

Similarly, industries whose fortunes are related to the auto industry--rubber and steel--expect healthy real sales gains next year of 7.5% and 6.0%, respectively; but as with autos, even if such gains are realized industry sales will still not get back to 1979 levels.

Other manufacturers expecting strong real sales performances next year include instruments (10.2%), fabricated metals (9.8%), and nonferrous metals (7.4%). The only nonmanufacturer looking for a particularly good year in 1981 is communications (8.1%). By contrast, the electric utility industry expects real sales next year to decline by 0.3%.

Energy Conservation

Though capital spending in total is not expected to advance much next year, the portion allocated to energy conservation could rise substantially. In 1981, survey respondents say they plan to devote 3.9% of their capital spending to energy conservation (Table VI); if this goal is attained, and if business also spends $218.49 billion on plant and equipment as planned, then energy conservation spending would reach $8.5 billion. Meanwhile, business estimates that 3.2% of capital spending--$6.2 billion--went to energy conservation in 1980. If all plans are met, energy conservation capital spending would consequently surge by one-third next year, compared to the 11.9% rise projected for capital expenditures overall.

One caveat here is that survey respondents were asked to make at least a rough estimate of capital spending devoted to energy conservation. Thus, responses may be only approximate, which means that the difference between 3.2% in 1980 and 3.9% in 1981 may not be significant. A more solid conclusion based on the survey results would be that business is allocating from 3% to 4% of its capital spending to energy conservation.

The results also serve to rank industries according to their energy conservation spending. Thus, Table VI shows that nondurable goods manufacturers devote greater shares of plant and equipment expenditures to energy conservation than do durable goods producers and nonmanufacturers. In particular, the biggest shares of 1981 capital budgets going to energy conservation are in the textile, chemical, petroleum, paper, steel, and food industries.

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NOTES: The other durables category listed in the tables includes lumber, furniture, jewelry, toys, and transportation equipment other than autos and aerospace. Other nondurables includes apparel, tobacco, printing and publishing, and leather. The commercial category includes retail and wholesale trade, banking, holding companies, insurance companies, hotels, laundries, and construction.

All dollar figures in the tables refer to industry totals, not just to totals for survey respondents.

Capital spending figures refer to plant and equipment spending in the U.S. only. Foreign capital expenditures by U.S. companies are not included.

TABLE I

PLANS FOR CAPITAL SPENDING
(Billions of Dollars)

Industry	1980 Estimated	1981 Planned	1980-81 % Change	1982 Planned
Iron & Steel	$ 3.22	$ 3.04	- 5.7%	$ 3.22
Nonferrous Metals	3.68	4.31	17.0	4.59
Electrical Machinery	6.38	7.39	15.9	8.18
Machinery	9.56	10.10	5.6	11.60
Autos, Trucks & Parts	5.66	6.03	6.5	7.15
Aerospace	2.61	2.39	- 8.2	2.05
Fabricated Metals & Instruments	5.45	5.93	8.8	6.43
Stone, Clay & Glass	3.09	2.77	-10.2	3.04
Other Durables	4.42	4.17	- 5.7	4.56
TOTAL DURABLES	44.07	46.13	4.7	50.82
Chemicals	10.27	11.93	16.2	11.63
Paper & Pulp	5.12	5.60	9.3	5.83
Rubber	1.95	1.94	- 0.3	2.28
Petroleum	20.40	29.13	42.8	36.27
Food & Beverages	5.51	5.91	7.3	5.73
Textiles	1.23	1.39	12.9	1.33
Other Nondurables	3.30	3.27	- 1.0	3.35
TOTAL NONDURABLES	47.78	59.17	23.8	66.42
ALL MANUFACTURING	91.85	105.30	14.6	117.24
Mining	5.70	6.44	12.9	6.76
Railroads	3.82	3.58	- 6.3	3.44
Airlines	3.64	3.98	9.4	5.52
Other Transportation	2.80	3.25	16.1	2.72
Communications	22.05	23.93	8.5	24.86
Electric Utilities	29.10	31.11	6.9	32.62
Gas Utilities	5.79	6.79	17.3	7.13
Commercial	30.52	34.12	11.8	37.38
ALL NONMANUFACTURING	103.42	113.19	9.4	120.43
ALL BUSINESS	195.27	218.49	11.9	237.67

NOTE: Dollar figures are rounded, so that percent changes between them do not always coincide with percent change figures published in the table.

TABLE II

INFLATION EXPECTATIONS

INDUSTRY	----Expected % Change, 1980-81---- Plant & Equipment Prices	Product Prices
Iron & Steel	8.7%	9.0%
Nonferrous Metals	13.2	9.6
Electrical Machinery	10.7	8.0
Machinery	10.8	8.5
Autos, Trucks & Parts	10.3	8.5
Aerospace	9.8	10.2
Fabricated Metals	10.2	8.9
Instruments	10.3	5.6
Stone, Clay & Glass	10.0	7.5
Other Durables	9.8	9.3
TOTAL DURABLES	10.4	8.6
Chemicals	10.4	10.3
Paper & Pulp	10.0	8.1
Rubber	10.6	8.9
Petroleum	10.7	15.7
Food & Beverages	9.4	8.7
Textiles	10.6	8.4
Other Nondurables	8.2	9.0
TOTAL NONDURABLES	10.2	10.2
ALL MANUFACTURING	10.3	9.4
Mining	14.0	15.8
Railroads	10.3	9.2
Airlines	9.1	11.5
Other Transportation	7.9	5.7
Communications	9.0	5.0
Electric Utilities	10.2	13.4
Gas Utilities	9.7	18.3
Commercial	9.9	10.1
ALL NONMANUFACTURING	10.0	10.1
ALL BUSINESS	10.1	9.9

TABLE III

SALES EXPECTATIONS
(Billions of Dollars)

INDUSTRY	1980 Estimated	1981 Expected	1980-81 % Change
Iron & Steel	$ 61.7	$ 71.0	15.0%
Nonferrous Metals	62.9	73.6	17.0
Electrical Machinery	123.4	139.0	12.6
Machinery	169.2	188.4	11.4
Autos, Trucks, & Parts	96.2	112.3	16.8
Aerospace	49.1	54.5	10.9
Fabricated Metals	108.4	128.6	18.7
Instruments	42.3	49.1	15.8
Stone, Clay & Glass	48.9	55.9	14.3
Other Durables	121.4	140.3	15.7
TOTAL DURABLES	883.4	1,014.0	14.8
Chemicals	162.1	188.4	16.2
Paper & Pulp	70.4	79.1	12.4
Rubber	38.7	45.1	16.3
Petroleum	185.5	216.9	16.9
Food & Beverages	249.1	279.6	12.3
Textiles	49.6	54.9	10.7
Other Nondurables	145.4	167.1	14.9
TOTAL NONDURABLES	900.8	1,029.9	14.3
ALL MANUFACTURING	1,784.2	2,044.2	14.6
Mining	NA	NA	14.2
Railroads	NA	NA	14.0
Airlines	NA	NA	13.6
Other Transportation	NA	NA	8.6
Communications	NA	NA	13.2
Electric Utilities	NA	NA	13.1
Gas Utilities	NA	NA	24.0
Commercial	NA	NA	12.0

TABLE IV

REAL SALES EXPECTATIONS
(Billions of 1980 Dollars)

INDUSTRY	1980 Estimated	1981 Expected	1980-81 % Change
Iron & Steel	$ 61.7	$ 65.4	6.0%
Nonferrous Metals	62.9	67.6	7.4
Electrical Machinery	123.4	129.1	4.6
Machinery	169.2	174.1	2.9
Autos, Trucks, & Parts	96.2	104.1	8.3
Aerospace	49.1	49.5	0.8
Fabricated Metals	108.4	119.0	9.8
Instruments	42.3	46.6	10.2
Stone, Clay & Glass	48.9	52.2	6.8
Other Durables	121.4	129.1	6.4
TOTAL DURABLES	883.4	937.9	6.2
Chemicals	162.1	171.8	5.9
Paper & Pulp	70.4	73.4	4.3
Rubber	38.7	41.6	7.5
Petroleum	185.5	187.7	1.2
Food & Beverages	249.1	257.9	3.6
Textiles	49.6	50.7	2.2
Other Nondurables	145.4	154.0	5.9
TOTAL NONDURABLES	900.8	938.7	4.2
ALL MANUFACTURING	1,784.2	1,877.3	5.2
Mining	NA	NA	1.6
Railroads	NA	NA	4.8
Airlines	NA	NA	2.1
Other Transportation	NA	NA	3.0
Communications	NA	NA	8.1
Electric Utilities	NA	NA	-0.3
Gas Utilities	NA	NA	5.7
Commercial	NA	NA	3.3

TABLE V

BUSINESS' VIEW OF THE ECONOMY IN 1981

INDUSTRY	---Percent of Companies Reporting--- Recession	Slow Growth	Normal Growth	Rapid Growth	-----Weighted by Size of Company---- Recession	Slow Growth	Normal Growth	Rapid Growth
Iron & Steel	0.0%	66.7%	16.7%	16.7%	0.0%	72.8%	2.7%	24.5%
Nonferrous Metals	12.5	50.0	12.5	25.0	66.5	25.2	2.6	5.7
Electrical Machinery	16.7	50.0	20.8	12.5	25.9	65.4	7.7	1.0
Machinery	12.1	60.6	9.1	18.2	43.8	40.6	3.7	11.9
Autos, Trucks & Parts	12.5	75.0	0.0	12.5	6.9	67.2	0.0	25.8
Aerospace	50.0	33.3	16.7	0.0	25.3	57.7	17.0	0.0
Fabricated Metals & Instruments	29.0	48.4	12.9	9.7	34.3	61.8	3.3	0.6
Stone, Clay & Glass	41.2	41.2	11.8	5.9	41.1	42.7	16.0	0.1
Other Durables	15.8	26.3	31.6	26.3	0.5	9.0	27.5	63.0
TOTAL DURABLES	20.3	50.0	15.2	14.6	27.1	49.2	8.9	14.7
Chemicals	27.6	51.7	13.8	6.9	34.2	60.1	2.2	3.5
Paper & Pulp	38.5	38.5	7.7	15.4	41.9	41.6	5.8	10.7
Rubber	10.0	60.0	10.0	20.0	7.3	88.2	1.3	3.1
Petroleum	46.2	23.1	23.1	7.7	55.5	21.8	22.5	0.2
Food & Beverages	15.0	55.0	20.0	10.0	15.7	56.2	19.3	8.7
Textiles	12.5	50.0	6.3	31.3	9.5	54.4	0.2	35.9
Other Nondurables	38.9	16.7	22.2	22.2	88.6	3.9	3.8	3.7
TOTAL NONDURABLES	26.9	42.9	15.1	15.1	36.1	46.6	7.9	9.4
ALL MANUFACTURING	23.1	46.9	15.2	14.8	31.1	48.1	8.5	12.4
Mining	20.0	20.0	20.0	40.0	8.9	11.9	52.5	26.6
Railroads	0.0	50.0	0.0	50.0	0.0	79.4	0.0	20.6
Airlines	33.3	50.0	0.0	16.7	2.1	55.4	0.0	42.5
Other Transportation	0.0	100.0	0.0	0.0	0.0	100.0	0.0	0.0
Communications	40.0	40.0	20.0	0.0	4.4	3.4	92.2	0.0
Electric Utilities	31.4	40.0	11.4	17.1	31.3	32.6	19.8	16.3
Gas Utilities	9.1	45.5	36.4	9.1	3.8	65.3	28.3	2.5
Commercial	34.4	21.9	25.0	18.8	40.1	37.8	17.0	5.1
ALL NONMANUFACTURING	27.7	35.6	17.8	18.8	11.3	48.2	26.2	14.2
ALL BUSINESS	24.3	43.9	15.9	15.9	24.5	48.1	14.4	13.0

Rapid Real Growth: 4% or higher.
Slow Real Growth: 1.0% to 2.4%.
Normal Real Growth: 2.5% to 3.9%
Recession: less than 1%.

TABLE VI

ENERGY CONSERVATION

% Capital Spending Devoted to Conservation

INDUSTRY	1980 Estimated	1981 Expected
Iron & Steel	8.3%	5.9%
Nonferrous Metals	3.6	3.9
Electrical Machinery	2.5	2.4
Machinery	2.8	3.4
Autos, Trucks & Parts	2.9	3.9
Aerospace	2.0	2.6
Fabricated Metals	4.4	4.8
Instruments	2.7	3.1
Stone, Clay & Glass	4.8	5.0
Other Durables	3.2	3.5
TOTAL DURABLES	3.5	3.6
Chemicals	7.3	7.9
Paper & Pulp	5.7	6.0
Rubber	3.8	3.4
Petroleum	3.4	7.1
Food & Beverages	5.1	5.9
Textiles	6.1	8.4
Other Nondurables	4.9	5.2
TOTAL NONDURABLES	4.9	6.7
ALL MANUFACTURING	4.2	5.2
Mining	2.4	2.7
Railroads	1.2	0.8
Airlines	2.3	2.0
Other Transportation	2.0	2.0
Communications	3.0	4.0
Electric Utilities	1.5	1.7
Gas Utilities	3.4	3.7
Commercial	2.7	3.3
ALL NONMANUFACTURING	2.3	2.8
ALL BUSINESS	3.2	3.9

TABLE VII

SURVEY SAMPLE SIZE

INDUSTRY	Percentage of Capital Spending Covered by Survey
Iron & Steel	86.5%
Nonferrous Metals	25.1
Electrical Machinery	44.1
Machinery	24.7
Autos, Trucks & Parts	92.7
Aerospace	61.7
Fabricated Metals & Instruments	24.9
Stone, Clay & Glass	50.0
Other Durables	11.7
TOTAL DURABLES	44.3
Chemicals	61.3
Paper & Pulp	34.2
Rubber	11.3
Petroleum	60.7
Food & Beverages	26.4
Textiles	25.5
Other Nondurables	51.3
TOTAL NONDURABLES	49.6
ALL MANUFACTURING	47.0
Mining	5.3
Railroads	59.0
Airlines	47.3
Other Transportation	1.5
Communications	83.3
Electric Utilities	57.2
Gas Utilities	49.3
Commercial	10.9
ALL NONMANUFACTURING	43.6
ALL BUSINESS	45.1

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34th ANNUAL McGRAW-HILL SPRING SURVEY OF BUSINESS' PLANS FOR NEW PLANTS AND EQUIPMENT, 1981-84

Despite a heating up of the American economy during the past six months, and despite a particularly strong burst of economic activity in 1981's first quarter, U.S. business is keeping the lid down on its 1981 capital spending plans.

According to McGraw-Hill's 34th annual spring capital spending survey, business expects to increase expenditures on new plant and equipment in the U.S. by 12% in 1981 to $331 billion (Table I). The survey was conducted in March and April, after President Reagan proposed his pro-investment tax cuts and by which time the economic outlook seemed to be brightening considerably. Yet McGraw-Hill surveys taken last winter and fall, when the outlook was dimmer, came up with very similar results--capital spending in 1981 was projected to rise by about 12%, inflation included. The consistency of results suggests, at least in part, that in the past six months firms have not changed their cautious view of the economy.

When inflationary expectations are taken into account, projected "real" capital spending plans are also about the same as they were last winter and fall. Business currently expects plant and equipment prices to rise by 10.3% in 1981 (Table IX), so that inflation-adjusted capital

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spending would rise by 1.5% this year if both expenditure and price expectations were realized. In the winter survey, real 1981 spending was projected to rise by 2%. Last fall, the projection was 1.6%.

Since the economy is currently in recovery (it has been growing for three quarters now), and since capital spending usually follows economic growth by a quarter or two, why haven't spending plans been hiked during the past half year?

Shouldn't Spending Plans Be Stronger?

While 1.5% real growth in plant and equipment expenditures is reasonable for a year following a recession, the projection becomes problematic in light of capital spending's strong performance in the first quarter: One of the fastest-growing sectors of the economy in the first quarter was business investment,[1] which in real terms leaped by (an annualized) 12.5%. If the expectations of survey respondents prove accurate, it means real investment will slow considerably from this rapid first-quarter pace. In fact, inflation-adjusted spending would have to fall in at least one quarter of this year.

To get a fix on the possible accuracy of the survey, consider Chart 1 below. The years shown there are ones that followed years in which recession troughs occurred; 1981 is presumably a similar type of year.

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[1]Investment in the GNP accounts is slightly different from capital spending as defined in this survey. The GNP definition is broader in that it includes nonprofit organizations and certain petroleum industy spending which is expensed rather than capitalized. The GNP figure also treats motor vehicle purchases differently. However, despite these differences, the two series--the one used in the GNP accounts and the one used in this survey--move very similarly in percentage terms on a year-to-year basis.

Chart 1. Post-Recession Capital Spending Growth

	--------% Change from Previous Year-----				
	1955^{E}	1959^{E}	1961^{L}	1971^{L}	1976^{E}
Plant & Equipment (P&E) Spending	10.4%	6.2%	-1.7%	2.8%	8.7%
Real P&E Spending	8.3	4.3	0.7	-2.5	3.7
Real GNP	6.7	6.0	2.6	3.4	5.4

NOTE: An "E" means that the trough of recession occurred early in the previous year. An "L" means it occurred late.

The first thing to note is that when a recession hit bottom late in a year, capital spending in the following year--in 1961 and 1971--was weak. This pattern reflects the fact that by the end of a recession firms typically find themselves with a lot of spare capacity and considerably reduced profits. They consequently have little need to invest while at the same time their financial ability to invest has been lowered. Moreover, at the time a recession is coming to an end it is not always clear that such is the case, so companies often hold back on investment plans to make sure demand is really picking up.

When a recession ends early in a year, the process of raising capacity utilization, refilling corporate coffers, and reviving confidence occurs in the latter part of the recession year. By the beginning of the next year, the trajectory of the economy is already tilted upward, and capital spending is poised to follow. Hence the rapid growth of real GNP in 1955, 1959, and 1976, and the much stronger performance of capital spending in those years compared to 1961 and 1971.

Since the 1980 recession was confined to the second quarter, 1981 should presumably be more like 1955, 1959, and 1976 than like 1961 or 1971. If that is in fact the case, the survey's projection of 1.5% real growth in plant and equipment spending seems too pessimistic.

However, the 1980 downturn in GNP was exceptionally sharp, so that even though growth resumed quickly the level of economic activity remained depressed. Also, interest rates climbed extremely rapidly last fall and winter, threatening to push the economy into a second "dip" of recession. That threat has not materialized, but neither has it disappeared, especially in view of the recent rate increases. As a consequence, economists see one or two quarters of fairly sluggish growth ahead. The upshot: 1981 may not be a typical post-recession year.

For the year as a whole, the standard economic forecast calls for real GNP growth of 2% - 3%. If this view is correct, it means 1981 will be more like the slow-growth than the fast-growth post-recession years. A corollary is that the McGraw-Hill survey projection of relatively slow real growth in capital investment is likely to be close to the true target.

At the same time, capital goods prices advanced at less than a 5% annual rate in the first quarter, so that for the year as a whole the survey projection of a 10% price rise could be too high. If firms stick to their 12% spending plans and if prices stay lower than expected, real spending may come in closer to 3% than to 2%.

Why business is probably not planning a 4+% real capital expenditures boost this year--despite encouraging economic news during the past three quarters--is summarized in Chart 2 on page 5. In essence, Chart 2 says that while demand for goods and services may be on the upswing, sales are still not strong; as a result, operating rates are low and business thus feels no urgent need to expand or modernize. Meanwhile, companies have not yet

Chart 2. Factors For and Against Investment in 1981

Pro-Investment Factors	Anti-Investment Factors
Real GNP has grown for three quarters.	The 1980 recession was very sharp, so despite the recovery real GNP is barely above where it was a year ago.
Growth in the first quarter was very strong.	But part of that growth was due to auto rebates, which are now over; part was due to exports, which can be volatile; and part was probably due to mild weather. So the economy may weaken after the strong first quarter.
Corporate cash flow has begun to perk up.	Cash flow is still below pre-recession levels.
Many forecasters believe interest rates will decline in the near term.	Corporate bond rates are very high now; and unless the Fed raises its money targets or inflationary expectations droop quickly, bond rates will not fall significantly.
Congress will likely pass pro-investment tax cuts for business this year.	Until the tax cuts are passed, business may delay some capital projects.
The industrial operating rate has improved since last summer.	The rate is still at a low 78% (Table VI at the end of this report), well below industry's preferred operating rate of 90%.

recovered financially from the recession nor have they been presented with favorable external financing conditions.

Pitting the pros against the cons, it looks like a 12% gain in plant and equipment expenditures is about right.

The Spending Mix: Nondurables In Front

During recession, manufacturers of nondurable goods typically get hit less hard than do durables producers; thus the former's capital spending plans are usually stronger following recession. And, in fact, the survey points to this pattern.

In 1981, nondurable producers plan to hike capital spending by 20% (Table I), compared to 10% for both durable goods makers and for nonmanufacturers. Not surprisingly, the leading industry among the nondurables is petroleum, which expects spending to surge by 33% this year to $27.52 billion. Such strong plans reflect the financial muscle of oil companies in conjunction with their record effort to explore for and produce crude oil. Plans also include the overhaul of refineries to allow them to process greater varieties of crude. (Excluding petroleum, the projected nondurables spending increase drops to 12%; for all business it drops to 10.4%.)

Other nondurables producers planning large spending increases next year are food (26%), rubber (15.5%), and textiles (15%). The food industry, which compared to all manufacturing industries had better-than-average sales last year, seems bent on rapid additions to capacity (Table V). Sales of textiles were sluggish last year, but have improved sharply in recent months; and textile firms expect real sales to jump by 5% in 1981 (Table VIII). The rubber industry, deflated by the 1980 auto debacle, expects real sales to rebound this year and thus plans to resume spending on new plant and equipment after cutting back in 1980.

Among durables producers, the autos, trucks, and parts industry projects the biggest advance in 1981 (22.5%). Again, this result is not

surprising, given the auto industry's ambitious retooling plans to meet foreign competition. Nonferrous metals companies also plan a large capital spending increase this year (21%), most of which is for replacement and modernization rather than for expansion (Table III).

Perhaps the most interesting result among the durables is the machinery industry. In McGraw-Hill's survey last winter, machinery companies projected that capital spending in 1981 would top the 1980 figure by just 8.5%. The industry now projects an advance of better than 14%. Moreover, machinery companies are planning large additions to capacity, a possible indication that the suppliers of capital goods are betting the Reagan strategy to boost investment will work.

By way of contrast, the aerospace industry intends to spend less on plant and equipment this year than it did last year. These plans likely reflect a year-long slump in new aircraft orders, and a sharp drop in the operating rate to a low 73% at yearend 1980.

The airline industry, on the other hand, plans a steep increase in capital spending this year. (There is no necessary connection, however, between current-year spending of the aerospace and the airlines industries. The need to expand and modernize aircraft manufacturing capacity depends on new orders from both domestic and foreign airlines as well as from the military. Capital expenditures by U.S. airlines in large part reflect aircraft orders placed in the past.) Airlines' planned spending is way up over plans reported last winter, which could reflect changes in the survey sample or earlier-than-expected delivery of some aircraft.

At the other end of the spectrum from airlines in the nonmanufacturing sector is the railroad industry, which expects spending to fall by nearly 7% in 1981.

Sales and Price Expectations

Whatever impact the Reagan Administration program has on inflation, it won't have much effect this year, according to survey respondents. In 1981, business thinks the prices of its products will rise by 10% (Table IX), or at about the same rate as inflation advanced in 1980.

Over the longer run, however, the survey does provide a bit of evidence suggesting that the Reagan Administration can expect some success in reducing inflationary expectations; at the same time, respondents still don't completely buy the Reagan scenario. That scenario calls for inflation, as measured by the GNP deflator, to rise by 8.3% in 1982, 7% in 1983, and 6% in 1984. As shown in Chart 3 on the next page, the cumulative rate of inflation foreseen by Reagan Administration economists is 22.8%. Survey respondents, meanwhile, foresee more than 24% inflation during the period. Nonetheless, if business' expectations are met it would mean an annual average inflation rate of 7.5% during the next three years compared to 9% last year and 8.5% the year before.

Manufacturers responding to the survey also lend support to the Administration's contention that the economy can grow by better than 4% a year from 1982 to 1984. As shown in Chart 3, cumulative growth (measured by real GNP change) projected by the Reagan Administration is 14.3% for the period. That's an annual average of 4.6%. Similarly, manufacturing respondents foresee real sales (Table VIII) rising by 13.5% from 1981 to 1984--4.3% growth per year.

Chart 3. Reagan/Survey Forecasts

	% Change 1980-81	% Change 1981-84
Inflation		
Reagan	9.9%	22.8%
Survey - All Business	10.1	24.1
- All Manufacturing	9.9	25.5
Real Growth		
Reagan	1.1	14.3
Survey - All Manufacturing	3.4	13.5

Real sales growth projections for nonmanufacturing is not calculated since data comparable to the manufacturers' sales are not available. However, from the growth projections of individual nonmanufacturers in Table VIII it is apparent that nonmanufacturers do not expect the same robust growth as do manufacturers. Thus, if all industries' expectations were realized, growth for the economy as a whole would fall below 4% per year from 1981 to 1984.

Turning to individual industries' price and sales projections, at least two interesting points emerge. One is that energy-producing and energy-dependent industries expect the largest product price increases this year. At the top is petroleum with a projection that its prices in 1981 will rise by nearly 21%, the result of OPEC action and domestic price decontrol. (Petroleum product prices have been softening, but because they rose so sharply early in the year their 1981 average will likely be well above the 1980 average.) Mining, which includes crude oil producers, projects similarly large increases. Reflecting these oil price boosts, the airlines and electric utilities foresee their 1981

prices rising by 15.9% and 14.2%, respectively, compared to 10.1% for business as a whole. The corollary is that petroleum, airlines, and electric utility companies foresee little or no growth in real sales in the next few years.

The second point is that capital goods producing industries seem to be taking seriously the prospect of a capital spending boom. Thus, while manufacturers as a whole project a 13.5% rise in real sales from 1981 to 1984, the machinery industry anticipates an increase of more than 25%. The fabricated metals industry, which includes makers of products used in construction and in machinery, foresees a real sales climb of more than 24%. And the stone, clay, and glass industry expects sales to jump by more than 20% during the period. The steel industry, which would play an important role in a capital spending boom, is not so optimistic, however. It projects real sales from 1981 to 1984 to rise by just 6.5%, perhaps in the belief that domestic auto sales during the period will be sluggish and that steel imports will grow.

Another survey result also suggests that industry anticipates capital spending to pick up--plant and equipment prices during the next few years are seen rising faster than product prices by 27.5% versus 24.1%. Capital spending, in other words, is apparently expected to grow faster than the economy in general, thus putting upward pressure on plant and equipment prices.

A third point about the survey's sales projections is that the aerospace industry expects the biggest surge of any industry through 1984. It thus seems evident that expectations are high that President

Reagan will get the military budget he wants. In addition, airlines are likely to be demanding planes that are increasingly energy-efficient, and will want to replace their fuel guzzlers whenever feasible.

Capital Spending to 1984: Biased Downward

According to the survey, capital spending will grow to slightly more than $400 billion in 1984 (Table I), up 21% from the projected 1981 figure. That projection, however, is certainly too low, especially in view of the survey result that plant and equipment prices will spurt by 27.5% (Table IX) during the same period. Why, then, the low capital spending projection for 1984?

The simple answer is that the survey's projections for more than one year ahead are always biased on the down side. When forecasting capital requirements, it seems that the further firms project the more conservative they get. Then, as the future time period draws nearer, and as future uncertainties become more knowable, companies boost their plans. For example, last year's spring survey found that business planned a 3% rise in capital spending in 1982. The winter survey projected a 6% hike in 1982. This spring, survey respondents foresee 1982 capital expenditures climbing by 8.6%. When McGraw-Hill conducts its next survey in the fall, a higher and much more accurate 1982 figure will be obtained.

Thus, the 1982 to 1984 projections are not accurate predictors of actual levels of aggregate spending. Instead, they are more useful for getting a fix on whether certain industries currently have bullish plans. For example, while planning a modest capital spending rise in

1981 (10%), the iron and steel industry has laid big plans for 1982 (24%) and may follow that up in 1983 (currently 10% growth is projected). Nonferrous metals producers, too, already have major plans for 1982.

Among nondurable goods industries, rubber and petroleum companies seem ahead of others in laying future capital spending plans. Among nonmanufactuers, the railroads plan to come rolling back in future years after cutting capital expenditures in 1981. A huge spending increase of 43% is slated for 1982, backed up by jumps of 12% in both 1983 and 1984. The airlines expect a sharp rise in spending in 1983 as do the gas utilities.

Buildings Vs. Equipment: A Trend Reversal Persists

In the mid-1950s, manufacturing firms allocated more than one-fourth of their capital spending to construction, the remainder going to machinery and equipment (including motor vehicles). The percentage of spending for buildings then steadily declined, and from 1975 to 1979 averaged 15%. One cause of the trend was the Kennedy Administration tax cut, which succeeded in boosting overall investment but which was criticized for providing business with too much incentive to invest in relatively short-lived equipment rather than in long-lived structures.

Last year's McGraw-Hill survey found, however, that in 1980 firms intended to increase the proportion of their capital expenditures going to buildings. This year's results (Table IV) suggest that in 1981 manufacturers will spend 18% of their capital funds on structures--down a percentage point from 1980 but still up three percentage points from the 1975-79 average. The projection for 1982-84 is back to 15%, but as with planned expenditures for more than a year ahead, these projections must be considered tentative.

Nonmanufacturers, too, plan to maintain the higher proportion of construction spending scheduled for last year. While the share of spending allocated to buildings averaged 19% in the late 1970s, it rose to 23% in 1980 and this year's target is the same. The share is projected to rise marginally in 1982-84.

Construction spending may get a further boost if the Reagan Administration's investment tax proposals are passed into law. That package would reduce the depreciable lives of most structures to ten years, compared to 25 to 60 years at present. The cost of a building, therefore, could be written off more quickly than is the case now.

Regional Spending: Resumption of a Trend

Last year's survey report noted that for more than two decades the distribution of manufacturers' regional capital spending had been shifting away from New England, Middle Atlantic, and North Central states and toward the South Atlantic, South, and West. (Definitions of the regions are at the bottom of Table II.) Last year, however, the survey found a slight reversal of that trend: As the 1970s progressed, manufacturers allocated nearly 60% of their spending to the southern and western regions of the U.S.; but, according to the 1980 survey, that share dropped to 53% in 1980.

Last year's report also noted that data from a single survey should hardly be considered conclusive evidence that a trend had been interrupted. And, in fact, this year's survey shows that manufacturers plan to raise the proportion of their spending in the South Atlantic, South, and West compared to 1980. (In Chart 4, the 1981 projections from this year's survey are compared to last year's 1980 projections.)

Chart 4. Manufacturers' Regional Spending, 1980-81

	% of Capital Spending					
	New England	Middle Atlantic	North Central	South Atlantic	South	West
1980						
Durables	7%	12%	46%	9%	16%	9%
Nondurables	3	11	17	14	42	14
TOTAL	5	11	31	12	30	11
1981						
Durables	5	12	34	11	22	15
Nondurables	3	7	19	17	38	16
TOTAL	4	10	27	14	30	15

In 1980, manufacturers planned to spend 47% of their capital budgets in northern and midwestern states; this year, the share is down to 41%, the survey shows. The big shift is the reduction of the spending share in the North Central states--from 31% last year to 27% this year. The other side of the coin is the gain in shares by the West and South Atlantic.

Perhaps more interesting is the type of industry that projects a shift away from the North Central states. In 1980, for example, the auto industry planned to allocate 75% of its spending to North Central states; in 1981, the share was down to 31%. Machinery companies last year said they were putting 63% of spending in the midwest; in 1981 that was down to 48%. The electrical machinery industry plans to cut its North Central spending share from 21% to 9%. In short, in 1981 heavy industry intends to reduce the proportion of its plant and equipment expenditures targeted to the midwest.

And where are they shifting the spending to? The auto industry this year plans to do 23% of its spending in South Atlantic states, compared to 9% last year. Machinery companies plan a pickup of spending in the West, as well as in Middle Atlantic states. Electrical machinery companies plan to boost substantially their spending in the South, from 8% last year to 41% this year.

The share of spending by the nondurable goods industries, already heavily oriented to southern and western states, is projected to hold fairly constant from 1980 to 1981. Last year, 70% of nondurables' spending reportedly went to the South Atlantic, South, and West, while this year those regions are ticketed to get 71%. Thus, the overall southward and westward shift of manufacturing investment projected this year is largely due to heavy industry's reallocation of capital spending from the midwest to other areas of the country.

Notes on the Survey

Results in this report are based on the responses of more than 400 firms to a survey taken in March and April. These firms account for about one-third of capital spending in the country (Table X). For capital spending (Table 1), firms supplied dollar estimates of future plant and equipment expenditures. Estimates for each year were summed by industry, and percentage changes between years were calculated. Each industry's percentage change for 1980-81, derived from the sample firms, was then applied to the industry's total capital spending in 1980 in order to derive the industry's total estimated capital spending in 1981. The 1981-82 percentage change was applied to the estimated 1981 total industry figure to derive the industry's total estimated 1982

capital spending. The procedure was the same for 1983 and 1984. Firms with extreme percent changes in spending (outliers) were removed from the sample on a year-by-year basis. The source of the actual 1980 capital spending is the U.S. Department of Commerce. Late last year the Commerce Department revised the historical data back to 1947; consequently, the capital spending dollar figures in this report are not directly comparable to the figures in last year's spring survey.

Once each industry's total estimated capital spending was derived, the figures were summed to derive estimates for the various aggregate groupings--durables, nondurables, all manufacturing, all nonmanufacturing and all business.

All data presented in this report other than the capital spending figures are based on percentage--rather than dollar--answers supplied by the sample firms. Percentage responses were weighted by size of firm within an industry to derive industry figures. Figures for the aggregates were then derived by weighting each industry by size. The weighting scheme varied according to the data being processed. For example, percentage changes in sales and product prices were weighted by sales levels while percentage changes in plant and equipment price expectations were weighted by capital spending.

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NOTE: The other durables category listed in the tables includes lumber, furniture, jewelry, toys, and transportation equipment other than autos and aerospace. Other nondurables includes apparel, tobacco, printing and publishing, and leather. The trade and services category includes retail and wholesale trade, banking, holding companies, insurance companies, hotels, laundries, and personal and business services. The communications and other category includes construction firms and transportation services other than airlines and railroads.

TABLE I

PLANS FOR CAPITAL SPENDING
(Billions of Dollars)

INDUSTRY	1980 Actual	1981 Planned	1980-81 % Change	Preliminary 1982	Preliminary 1983	Preliminary 1984
Iron & Steel	$ 3.29	$ 3.62	10.1%	$ 4.48	$ 4.96	$ 4.78
Nonferrous Metals	3.11	3.77	21.2	4.94	4.73	4.75
Electrical Machinery	9.59	10.96	14.3	12.36	14.00	15.20
Machinery	11.59	13.26	14.4	13.10	15.08	17.02
Autos, Trucks & Parts	9.06	11.10	22.5	12.44	12.39	14.14
Aerospace	7.03	5.92	-15.7	4.90	4.25	4.36
Fabricated Metals	2.96	3.33	12.4	3.19	3.37	3.61
Instruments	2.28	2.54	11.4	2.89	3.06	3.10
Stone, Clay & Glass	3.82	3.90	2.0	4.19	4.53	4.47
Other Durables	6.18	6.59	6.6	7.46	8.22	8.51
TOTAL DURABLES	58.91	64.99	10.3	69.95	74.59	79.94
Chemicals	12.60	13.70	8.7	14.45	14.41	14.73
Paper & Pulp	6.80	6.81	0.1	5.86	6.71	6.46
Rubber	1.73	2.00	15.5	2.49	2.79	2.80
Petroleum	20.69	27.52	33.0	32.37	34.70	38.04
Food & Beverages	7.39	9.32	26.1	9.42	9.01	9.32
Textiles	1.62	1.87	15.1	1.70	1.83	1.78
Other Nondurables	6.08	6.97	14.6	7.27	7.66	6.62
TOTAL NONDURABLES	56.90	68.19	19.8	73.56	77.11	79.75
ALL MANUFACTURING	115.81	133.18	15.0	143.51	151.70	159.69
Mining	13.51	14.27	5.6	15.37	16.25	17.29
Railroads	4.25	3.97	- 6.7	5.66	6.32	7.08
Airlines	4.01	5.83	45.4	5.42	6.78	6.59
Electric Utilities	28.12	31.42	11.7	32.00	31.43	31.13
Gas Utilities	7.32	8.68	18.5	9.31	12.40	12.98
Communications & Other	40.81	43.25	6.0	48.80	52.82	56.01
Trade & Services	81.79	90.52	10.7	99.44	105.15	110.15
ALL NONMANUFACTURING	179.81	197.94	10.1	216.00	231.15	241.23
ALL BUSINESS	295.62	331.12	12.0	359.51	382.85	400.92

NOTE: The source for 1980 actual spending is the U.S. Dept. of Commerce. The one exception is capital spending by the instruments industry, which has been estimated from U.S. Census data and McGraw-Hill surveys. The figures in this table represent total industry spending, and not just the spending of firms in the survey. Derivation of the projected figures is discussed in the text, under "Notes on the Survey."

TABLE II

PLANNED CAPITAL SPENDING BY REGIONS
(% of Total Expenditures)

	New England		Middle Atlantic		South Atlantic		North Central		South		West	
INDUSTRY	1981	1982	1981	1982	1981	1982	1981	1982	1981	1982	1981	1981
Iron & Steel	0%	0%	25%	9%	14%	4%	49%	70%	9%	13%	3%	4%
Nonferrous Metals	2	1	16	14	5	9	30	26	30	38	17	22
Electrical Machinery	21	33	9	14	4	5	9	15	41	9	16	23
Machinery	1	1	15	15	4	4	48	48	23	23	9	8
Autos, Trucks & Parts	2	2	22	23	23	23	31	35	9	7	11	9
Aerospace	0	0	0	0	0	0	57	62	4	3	39	36
Fabricated Metals	6	6	5	4	27	25	21	19	31	35	9	10
Instruments	2	2	7	5	6	7	66	67	5	4	14	15
Stone, Clay & Glass	2	3	17	25	21	18	25	19	21	12	14	23
Other Durables	3	4	8	7	19	21	34	35	25	18	12	14
TOTAL DURABLES	5	7	12	13	11	11	34	39	22	15	15	16
Chemicals	2	5	10	7	29	12	14	22	39	42	6	11
Paper & Pulp	5	5	9	10	21	23	16	12	28	31	22	19
Rubber	2	2	7	4	7	7	24	18	59	69	1	1
Petroleum	1	0	6	10	2	3	13	11	58	58	18	18
Food & Beverages	5	4	6	6	12	9	53	56	11	9	14	15
Textiles	2	1	1	1	67	68	2	2	27	28	1	1
Other Nondurables	3	4	7	9	35	37	17	18	7	4	31	29
TOTAL NONDURABLES	3	3	7	8	17	14	19	21	38	39	16	16
ALL MANUFACTURING	4	5	10	11	14	12	27	29	30	27	15	16
Mining	0	0	1	1	9	9	8	9	66	66	14	14

New England: Maine, Vermont, New Hampshire, Connecticut, Rhode Island, Massachusetts
Middle Atlantic: New York, New Jersey, Pennsylvania
South Atlantic: Delaware, Maryland, Virginia, West Virginia, North Carolina, Georgia, Washington DC, South Carolina, Florida
North Central: Ohio, Michigan, Indiana, Illinois, Wisconsin, Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska, Kansas
South: Texas, Oklahoma, Arkansas, Louisiana, Kentucky, Tennessee, Mississippi, Alabama
West: Washington, Oregon, California, Montana, Idaho, Wyoming, Nevada, Colorado, Utah, Arizona, New Mexico, Alaska, Hawaii

TABLE III

EXPANSION VERSUS MODERNIZATION
(Percent of Capital Spending)

	---Actual 1980----		--Planned 1981--		-Planned 1981-84-	
INDUSTRY	Expan.	Replace. & Modern.	Expan.	Replace. & Modern.	Expan.	Replace. & Modern.
Iron & Steel	33%	67%	45%	55%	47%	53%
Nonferrous Metals	22	78	24	76	24	76
Electrical Machinery	60	40	56	44	33	67
Machinery	47	53	58	42	34	66
Autos, Trucks & Parts	13	87	35	65	33	67
Aerospace	29	71	16	84	11	89
Fabricated Metals	47	53	47	53	59	41
Instruments	43	57	43	57	45	55
Stone, Clay & Glass	41	59	30	70	19	81
Other Durables	28	72	27	73	30	70
TOTAL DURABLES	37	63	40	60	31	69
Chemicals	47	53	50	50	50	50
Paper & Pulp	49	51	43	57	33	67
Rubber	60	40	48	52	60	40
Petroleum	37	63	33	67	14	86
Food & Beverages	52	48	53	47	50	50
Textiles	19	81	21	79	22	78
Other Nondurables	26	74	35	65	41	59
TOTAL NONDURABLES	41	59	41	59	33	67
ALL MANUFACTURING	39	61	40	60	32	68
Mining	29	71	24	76	24	76

TABLE IV

BUILDINGS, MOTOR VEHICLES, AND OTHER MACHINERY & EQUIPMENT
(Percent of Capital Spending)

	Planned 1981			Planned 1982-84 (Average)		
INDUSTRY	Buildings	Motor Vehicles	Machinery & Equipment	Buildings	Motor Vehicles	Machinery & Equipment
Iron & Steel	9%	3%	87%	9%	3%	88%
Nonferrous Metals	14	1	85	14	1	85
Electrical Machinery	16	1	82	16	1	82
Machinery	27	1	71	22	1	75
Autos, Trucks & Parts	20	0	80	20	0	80
Aerospace	26	1	73	20	2	78
Fabricated Metals	11	2	87	9	2	89
Instruments	25	4	71	23	4	73
Stone, Clay & Glass	18	1	81	16	1	83
Other Durables	35	4	62	35	4	70
TOTAL DURABLES	22	1	76	20	2	79
Chemicals	16	1	83	14	1	85
Paper & Pulp	19	2	78	14	2	83
Rubber	9	2	90	8	2	90
Petroleum	10	1	89	3	1	96
Food & Beverages	21	4	74	20	4	76
Textiles	13	5	82	13	4	83
Other Nondurables	14	13	72	14	12	74
TOTAL NONDURABLES	15	3	82	10	3	87
ALL MANUFACTURING	18	2	79	15	2	83
Mining	22	3	75	22	3	75
Railroads	43	0	57	34	3	62
Airlines	9	22	71	9	24	68
Communications & Other	7	4	88	14	24	62
Electric Utilities	19	2	78	20	2	76
Gas Utilities	4	6	90	4	5	91
Trade & Services	33	8	59	33	8	59
ALL NONMANUFACTURING	23	6	71	24	10	65
ALL BUSINESS	21	4	74	21	7	72

NOTE: Sum of percent changes may not equal 100% due to rounding.

TABLE V

CAPACITY EXPANSION
(Index, 1967=100)

INDUSTRY	1980	1981	1984	-----Percent Change------ 1979-80	1980-81	1981-84
Iron & Steel	117	123	127	0.2%	4.5%	3.3%
Nonferrous Metals	136	137	145	0.6	0.6	6.0
Electrical Machinery	242	262	305	9.2	8.1	16.3
Machinery	204	228	263	3.4	11.7	15.8
Autos, Trucks & Parts	152	NA	NA	1.1	NA	NA
Other Transportation	172	NA	NA	4.0	NA	NA
Fabricated Metals & Instruments	201	211	245	5.7	5.2	15.9
Stone, Clay & Glass	177	184	205	1.9	3.5	11.8
Miscellaneous Manufacturing	178	185	200	3.3	4.3	8.0
Chemicals	228	239	273	4.5	4.8	14.5
Paper & Pulp	173	183	197	4.5	5.5	7.7
Rubber	162	165	201	1.0	2.1	21.8
Petroleum	144	142	142	- 1.1	- 1.3	0.0
Food & Beverages	226	250	291	11.4	10.4	16.6
Textiles	195	205	222	6.7	5.0	8.2
ALL MANUFACTURING	190	200	220	3.5	4.9	9.9
Mining	154	158	190	- 0.1	2.6	20.2
Electric & Gas Utilities	212	218	236	0.7	2.6	8.3
ALL INDUSTRY	188	196	216	2.6	4.2	10.4

NOTE: Index numbers are rounded. Percent changes are based on unrounded index numbers.

TABLE VI

CAPACITY - RATES OF OPERATION
(Percent)

INDUSTRY	Yearend 1980	Yearend 1979	Point Difference 1979-1980	Preferred Rate of Operation
Iron & Steel	82.6%	83.0%	- 0.4%	93.3%
Nonferrous Metals	85.8	94.5	- 8.7	99.7
Electrical Machinery	82.0	88.5	- 6.5	86.3
Machinery	78.3	90.5	-12.2	86.6
Autos, Trucks & Parts	60.4	73.5	-13.1	90.4
Aerospace	73.0	91.0	-18.0	85.0
Fabricated Metals	83.6	83.5	0.1	90.8
Instruments	82.6	82.0	0.6	98.9
Stone, Clay & Glass	72.5	87.0	-14.5	91.7
Other Durables	80.6	83.5	- 2.9	96.6
TOTAL DURABLES	76.4	85.5	- 9.1	90.0
Chemicals	77.2	83.0	- 5.8	84.7
Paper & Pulp	88.5	93.5	- 5.0	95.5
Rubber	77.5	77.5	0.0	93.3
Petroleum	77.7	91.0	-13.3	98.7
Food & Beverages	81.2	86.0	- 4.8	90.6
Textiles	85.8	87.0	- 1.2	93.1
Other Nondurables	85.7	76.5	9.2	96.9
TOTAL NONDURABLES	80.4	87.5	- 7.1	93.7
ALL MANUFACTURING	78.4	86.5	- 8.1	91.8
Mining	74.2	80.5	- 6.3	97.9
Electric Utilities	73.4	68.0	5.4	75.7
Gas Utilities	89.7	83.5	6.2	96.9
ALL INDUSTRY	77.7	82.0	- 4.3	89.8

TABLE VII

SALES EXPECTATIONS
(Billions of Dollars)

INDUSTRY	1980 Actual*	1981 Expected	1980-81 % Change	1984 Forecast	1981-84 % Change
Iron & Steel	$ 64.45	$ 75.34	16.9%	$ 104.20	38.3%
Nonferrous Metals	60.95	66.13	8.5	101.84	54.0
Electrical Machinery	123.39	136.47	10.6	178.23	30.6
Machinery	169.32	192.52	13.7	301.10	56.4
Autos, Trucks & Parts	106.03	120.34	13.5	170.64	41.8
Aerospace	51.13	57.9[illegible]	13.3	97.44	68.2
Fabricated Metals	111.47	125.[illegible]	12.3	184.26	47.2
Instruments	42.03	48.50	15.4	62.18	28.2
Stone, Clay & Glass	49.51	56.59	14.3	86.02	52.0
Other Durables	124.44	141.99	14.1	186.72	31.5
TOTAL DURABLES	902.72	1,020.99	13.1	1,472.63	44.2
Chemicals	162.39	187.40	15.4	279.60	49.2
Paper & Pulp	70.99	79.01	11.3	116.70	47.7
Rubber	44.00	53.55	21.7	69.56	29.9
Petroleum	175.53	205.19	16.9	296.09	44.3
Food & Beverages	252.07	280.05	11.1	372.47	33.0
Textiles	48.78	55.37	13.5	77.30	39.6
Other Nondurables	142.29	159.65	12.2	211.70	32.6
TOTAL NONDURABLES	895.82	1,020.22	13.9	1,423.42	39.5
ALL MANUFACTURING	1,798.54	2,041.21	13.5	2,896.05	41.9
Mining	NA	NA	34.5	NA	56.6
Railroads	NA	NA	26.8	NA	46.3
Airlines	NA	NA	18.9	NA	43.5
Electric Utilities	NA	NA	10.0	NA	41.3
Gas Utilities	NA	NA	17.8	NA	50.4
Communications & Other	NA	NA	14.7	NA	36.6
Trade & Services	NA	NA	9.8	NA	28.4

NA - Not Available
* - U.S. Department of Commerce.

TABLE VIII

REAL SALES EXPECTATIONS
(Billions of 1980 Dollars)

INDUSTRY	1980 Actual*	1981 Expected	1980-81 % Change	1984 Forecast	1981-84 % Change
Iron & Steel	$ 64.45	$ 70.81	9.9%	$ 75.45	6.5%
Nonferrrous Metals	60.95	60.61	-0.5	66.77	10.2
Electrical Machinery	123.39	126.01	2.1	133.58	6.0
Machinery	169.32	175.49	3.6	220.63	25.7
Autos, Trucks & Parts	106.03	109.60	3.4	121.13	10.5
Aerospace	51.13	53.29	4.2	73.11	37.2
Fabricated Metals	111.47	118.21	6.0	146.96	24.3
Instruments	42.03	45.63	8.6	49.83	9.2
Stone, Clay & Glass	49.51	51.49	4.0	62.02	20.4
Other Durables	124.44	132.65	6.6	148.46	11.9
TOTAL DURABLES	902.72	943.79	4.5	1,097.94	16.3
Chemicals	162.39	171.45	5.6	205.80	20.0
Paper & Pulp	70.99	72.09	1.6	80.36	11.5
Rubber	44.00	48.20	9.5	50.01	3.8
Petroleum	175.53	169.86	-3.2	177.74	4.6
Food & Beverages	252.07	256.46	1.7	273.97	6.8
Textiles	48.78	51.17	4.9	57.70	12.8
Other Nondurables	142.29	146.74	3.1	166.73	13.6
TOTAL NONDURABLES	895.82	915.97	2.2	1,012.31	10.5
ALL MANUFACTURING	1,798.54	1,859.76	3.4	2,110.25	13.5
Mining	NA	NA	NA	NA	NA
Railroads	NA	NA	14.0	NA	10.4
Airlines	NA	NA	2.6	NA	- 0.6
Electric Utilities	NA	NA	-3.7	NA	6.6
Gas Utilities	NA	NA	5.9	NA	11.7
Communications & Other	NA	NA	4.2	NA	10.5
Trade & Services	NA	NA	2.6	NA	9.1

* U.S. Department of Commerce.
NA - Not Available.

TABLE IX

INFLATION EXPECTATIONS

INDUSTRY	Product Price Change (%) 1980-81	Product Price Change (%) 1981-84	Plant & Equipment Price Change (%) 1980-81	Plant & Equipment Price Change (%) 1981-84
Iron & Steel	6.4%	29.8%	9.3%	25.8%
Nonferrous Metals	9.1	39.8	11.1	36.2
Electrical Machinery	8.3	23.2	11.6	31.9
Machinery	9.7	24.4	11.2	36.6
Autos, Trucks & Parts	9.8	28.3	10.1	41.2
Aerospace	8.7	22.6	11.5	32.7
Fabricated Metals	5.9	18.4	10.1	21.5
Instruments	6.3	17.4	10.1	16.9
Stone, Clay & Glass	9.9	26.2	11.2	28.8
Other Durables	6.5	17.5	10.1	18.4
TOTAL DURABLES	8.3	24.6	10.8	31.6
Chemicals	9.3	24.3	11.3	29.4
Paper & Pulp	9.6	32.5	9.7	26.0
Rubber	11.1	25.2	13.2	27.9
Petroleum	20.8	37.9	12.0	36.6
Food & Beverages	9.2	24.5	10.4	26.5
Textiles	8.2	23.8	10.0	27.4
Other Nondurables	8.8	16.7	13.2	17.2
TOTAL NONDURABLES	11.5	26.5	11.5	29.8
ALL MANUFACTURING	9.9	25.5	11.1	30.7
Mining	18.9	NA	11.8	27.8
Railroads	11.2	32.5	10.7	29.5
Airlines	15.9	44.3	11.3	34.2
Electrical Utilities	14.2	32.6	9.4	27.9
Gas Utilities	11.2	34.7	9.9	29.9
Communications & Other	10.1	25.0	8.8	20.0
Trade & Services	7.0	17.7	9.9	25.6
ALL NONMANUFACTURING	10.2	23.5	9.8	25.5
ALL BUSINESS	10.1	24.1	10.3	27.5

TABLE X

SAMPLE SIZE IN TERMS OF CAPITAL SPENDING

INDUSTRY	% Total Capital Spending Covered
Iron & Steel	82%
Nonferrous Metals	25
Electrical Machinery	33
Machinery	20
Autos, Trucks & Parts	80
Aerospace	14
Fabricated Metals	20
Instruments	49
Stone, Clay & Glass	31
Other Durables	21
Chemicals	35
Paper & Pulp	21
Rubber	39
Petroleum	75
Food & Beverages	18
Textiles	12
Other Nondurables	27
ALL MANUFACTURING	40
Mining	8
Railroads	31
Airlines	41
Electric Utilities	51
Gas Utilities	25
Trade & Services	5
Communications & Other Transportation	48
ALL BUSINESS	30